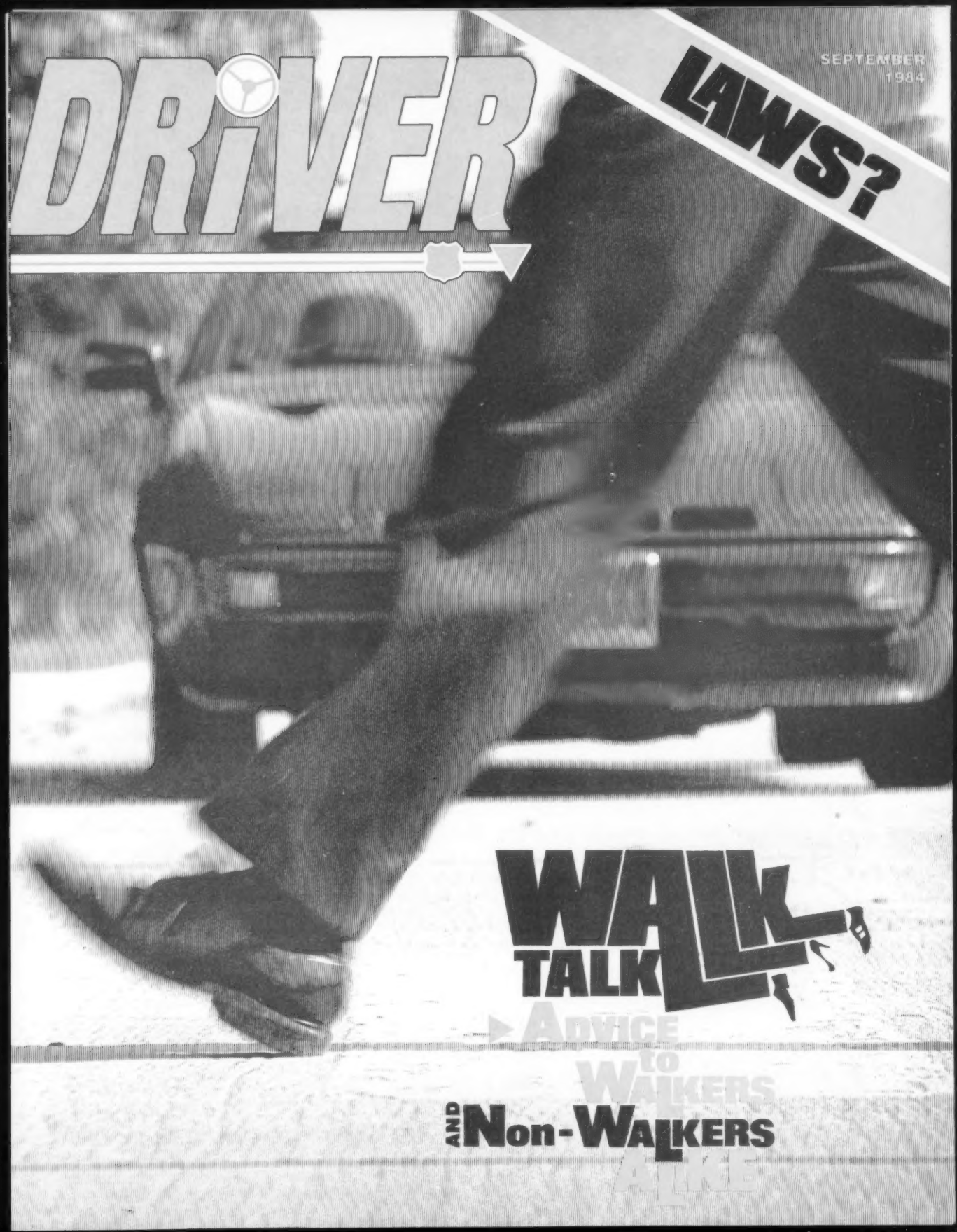

DRIVER
SEPTEMBER
1984
LAWS?
WALK
TALK
ADVICE
to
WALKERS
AND
Non-WALKERS
AIKE

Advice for WALKERS AND NON-WALKERS Like

Or to put it another way: WATCH OUT!

We're presenting a few questions and answers on pedestrian accidents, a problem that kills 8000-9000 Americans each year. The information in this article is from the American Automobile Association.

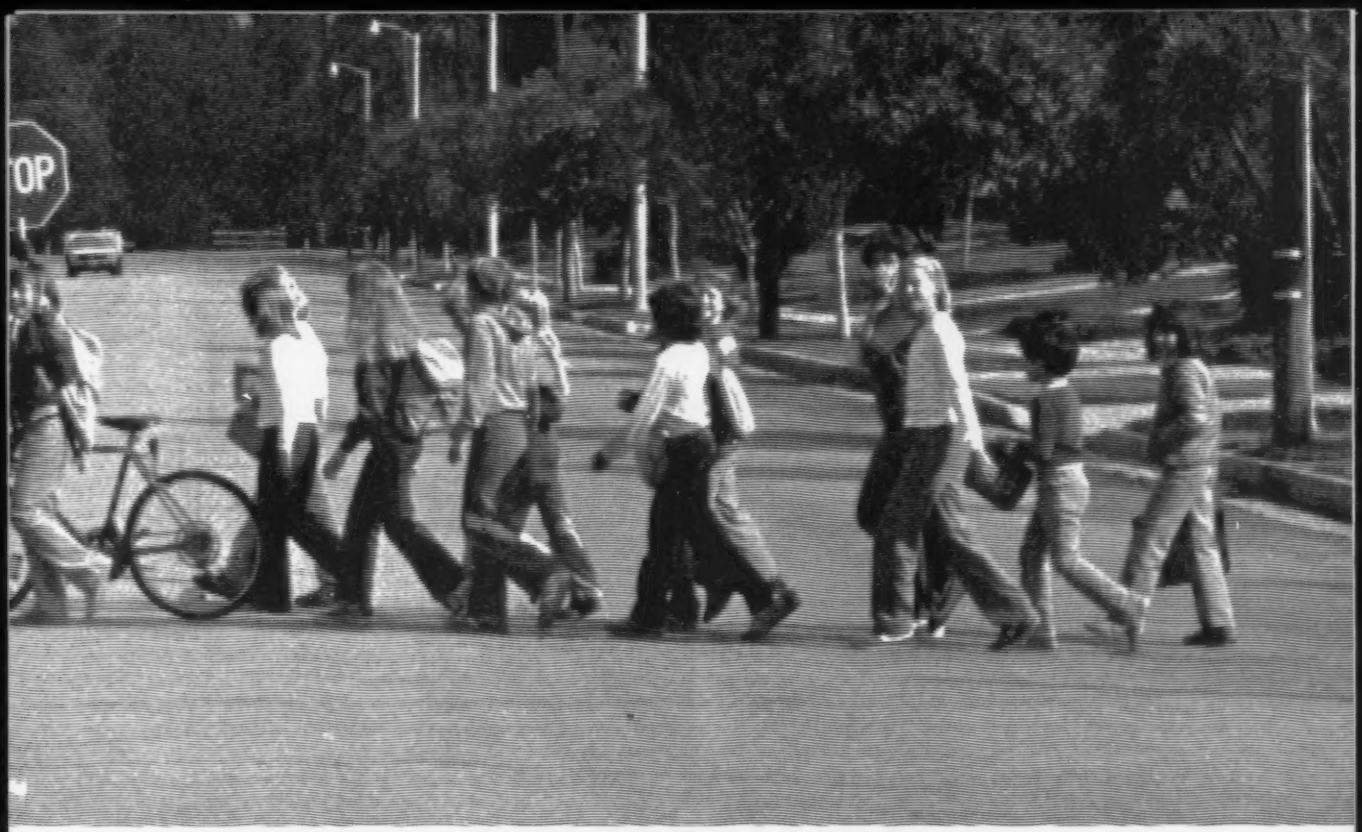
WALK TALK

What's the size of the problem of pedestrian accidents?

Since 1928, when national statistics first became available, more than half a million pedestrians have died in traffic accidents. In fact, the first recorded traffic accident in the U.S., in 1899 in New York City, was a pedestrian.

More than three times as many people die in pedestrian accidents as in airplane, sea and train accidents combined. The difference is that they die one by one, in contrast to, say, an airline accident, where 200 people die at once.

In 1983, 8000 pedestrians died. Each year pedestrians account for about 16 percent of the total traffic fatalities, and about four percent of the traffic injuries.



School crossings with guards protect children, possibly because the motorists expect to see children at these locations. Ninety-three percent of children injured going to and from school were struck at places where there were no special crossing areas.

The economic loss from pedestrian accidents is over $200 million annually.

Pedestrian deaths have dropped from 15,500 in 1937 to 8000 last year. During the same period, motor vehicle registration increased from 30 million to 167 million (459 percent), population increased from 128 million to 234 million (83 percent), motor vehicle traffic increased from 271 billion to 1,625 billion miles (500 percent), and non-pedestrian fatalities increased from 24, 143 to 36,300 (50 percent). Viewed that way, the pedestrian figure seems low. But those are still 8000 human beings who need not have died.

Where do most pedestrian accidents happen, in town or in the country?

Seventy-one percent of pedestrian deaths occur in urban areas, while only 30 percent of all non-pedestrian deaths happen in cities. Although more than twice as many pedestrians are killed in cities as in rural areas, the chance of death compared to injury is much higher in rural areas.

The AAA suggests that the chance of survival is better in urban areas because of lower vehicle speeds, better and more extensive police traffic enforcement and superior emergency medical services.

No matter what the numbers say, it is true that any time foot traffic mixes with vehicular traffic there is a potentially dangerous situation. It is therefore vital that the drivers *and* the pedestrians look for each other and keep out of each other's way.

For drivers: At intersections, come to a complete stop. Not only is this the law, but the pedestrians will appreciate it. If you creep through a stop, they can't be sure you will ever stop for them. If, however, you stop completely they'll know they have a chance to get across the road. Further, make eye contact with the pedestrians. That will signal them that you've seen them and you are going to let them cross in front of you.

Another courtesy is to stop *before* the crosswalk. This is the pedestrians' private space. If you stop before your grill passes over the line, he won't think you might keep moving.

Wait for pedestrians to get completely across the road before you move. If you move too soon they might get nervous. It'll only take an extra second or two to let them get to the opposite curb.

Likewise, don't jump the lights. The walkers deserve all their alloted time to make the crossing.

Watch stopped cars that have people inside. Any parked car could open at any time to dispense people who are now pedestrians. If you suspect any parked car you pass, you'll get fewer unpleasant surprises.

Remember that in some rural areas pedestrians may have to walk on the edge of the roadway where there are no sidewalks. Slow down whenever you encounter a person walking along the road and give the pedestrian plenty of room.

Always be alert for signs of human presence. Any time there are people about, there is a chance they will step into the street. Shopping carts, lawn equipment, children's toys — all could signal you that people are nearby, even when you can't see them. Slow down in any area where people might be on foot.

continued

THE TRAFFIC SAFETY MAGAZINE FOR THE MILITARY DRIVER

DRIVER

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THE EDITOR SPEAKS

DOUBLE CLUTCH

AIR BAGS

The Department of Transportation has issued a new version of an old Safety Standard (FMVSS 208) which will require automatic restraints in all passenger cars sold in the United States after Sept. 1, 1989, unless states representing two-thirds of the nation's population have enacted mandatory safety belt usage laws before April 1, 1989. Automatic crash protection would be phased in beginning Sept. 1, 1986, when 10 percent of a manufacturer's production must meet the rule. This would increase to 25 percent of the cars built after Sept. 1, 1987, and 40 percent of those produced after Sept. 1, 1988.

Transportation Secretary Elizabeth H. Dole says that her plan will encourage manufacturers to meet the 30 mph barrier crash test requirements using air bags or other technologies such as passive interiors by providing an extra credit of 1.5 cars for one car so equipped during the phase-in period. The Secretary also announced that the Department of Transportation would provide $20 million to be matched by private sector contributions for a nation-wide cooperative educational campaign to encourage seat belt use and usage laws.

As you might expect, the new standard has been met by both praise and criticism. The auto manufacturers appreciate that they have a long time to meet full compliance; the insurance companies on the other hand have already asked the U.S. Court to review the plan.

Meanwhile, some traffic safety specialists are wondering if people who now wear safety belts will stop once they have air bags. The new standard seems to say "we'll have air bags unless you people buckle up." But in life-saving potential, air bags *without* belts rank far below the belts we already have. If the standard is enforced exactly as it is now written, it will be the year 2005 before we know how everything works out. (The first 100 percent air-bag year will be 1990, plus 15 years until all cars on the road are so equipped.) While you're waiting to find out, make it click!

advice to walkers . . .

continued

WALK TALK

Small children present a special hazard to the driver. Their walking speed may be slow, but they can run surprisingly fast, and their small size can make them difficult to see between cars or behind trees or bushes.

For pedestrians: Obviously, the figures show more people are hit in the city. But you can do yourself a favor by remaining where the motorists expect to see you — in crosswalks and at intersections rather than in the middle of a block.

Never take a chance on crossing in heavy traffic against a light or away from an intersection. Even when you're exactly where you should be, expect trouble. A good example is motorists making a right turn on a red light. They are often more intent on watching for oncoming cars than for people stepping out into the street.

In places where there are no sidewalks, walk on the left side of the roadway. That is, walk facing traffic. That way you can see the cars coming at you and get out of their way if it looks like they won't keep out of yours. Be ready to quickly get off the road.

When two opposing cars will pass each other about where you are, you'd be wise to stop walking and get completely off the road to give them room. They won't be so concerned about missing little old you when facing another vehicle the same size as theirs.

Wherever you walk, be alert. There may be a drunk driver anywhere and at any time of day, but especially at night. Suspect any weaving car you see of being occupied by a drunk. Get out of his way, as far off the road as you can.

Whatever you do, don't assume anyone has seen you. You can never be sure, and that's what makes walking around automobiles so dangerous.

Aren't older and younger pedestrians the majority of the problem?

Not the majority, but a large part. The American Automobile Association reports than in 1983 those under age 15 accounted for 20 percent of the pedestrians killed in traffic accidents and 41 percent of those injured. Senior citizens over age 64 made up 19 percent of the pedestrian fatalities and six percent of the injured.

In general, a small child will need around seven seconds to cross a two-lane street. A young adult will take four to six seconds, while an elderly person will require seven to 10 seconds for the same trip. Obviously, the average adult will not cause an inconvenience, but the driver

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should watch the other two groups and give them the time they need to get out of the way.

First, let's consider the children. Kids between ages two and six are involved in as much as a quarter of all pedestrian accidents, but they make up only six percent of the population. Obviously, they are a very vulnerable group.

Young children do not understand automobiles. They do not understand that cars will not watch out for them or that cars might not be able to stop for them or to get out of their way. Even if they comprehend the danger of automobiles, they might not know where and when to move around cars. They might not know how to judge distance and speed. Faced with an oncoming car, they might freeze. They might be so intent on chasing a pet or getting to something across the street that they run without looking.

To the driver, kids present a special hazard. They are small and difficult to see at times. They sometimes move too quickly for you to react if you aren't watching for them. That is your — and their — only defense: Watch out for them. If you are in an area where there is the slightest chance of children being present, look for them. In yards, behind trees, between parked cars, on sidewalks.

In contrast, elderly people are at least easier to see. Also, they will not move so quickly, and they understand the dangers inherent in walking around automotive traffic.

However, they are also very vulnerable. Because they are not so agile or fast, they cannot get out of the way in a close call. Sometimes they can be very easily injured. They tend to be frightened of traffic, and with good reason. Some of them have poor hearing or vision, or both. This could lead to their falling and being injured if they are startled. Further, many of them no longer drive a car, and so could have forgotten the peculiarities of car movement.

All of this leads up to advice similar to that we gave for dealing with child pedestrians — be careful and watch out for them. Also, be very patient with them. You'll be old yourself someday.

Elderly pedestrians can take nearly twice as long to cross a road as young adults. Give them the full time it takes to reach the other curb, even if you can't move as soon as the light changes.

A final note on children: Of all children injured going to or from school, 93 percent were hit at locations where no type of special school crossing protection such as safety patrols, adult guards or police officers were in use.

So watch out, you drivers. Children won't always be where you expect to see them. As for the children, it's up to the parents to teach their small kids to keep away from cars, and to cross only at intersections, only with the lights, and preferably where there is some adult supervision.

What's the relative danger at night as opposed to daytime?

More than half of all pedestrian traffic fatalities occur during hours of darkness,

(right)
When you stop for a crosswalk, keep the front of your car completely behind the lines. Not only is this the law, but it also gives the pedestrians a feeling of security, that you aren't planning to move before they get past.

although pedestrian and vehicle traffic is significantly less at night. That means that the relative risk of death and injury to pedestrians goes up dramatically when the sun goes down.

The problem, obviously, is the difficulty in seeing those on foot. Cars have built-in lights; pedestrians don't.

For drivers: Watch carefully at night for foot traffic. Look for any movement at the side of the road, especially things that interrupt the beam of the headlights but don't themselves cast light.

Reduce your speed at night so you can stop quicker in an emergency, such as a pedestrian crossing your path. A proper speed allows you to stop the car within the distance illuminated by the headlights, which is of course as far as you see at night. Any faster and you are "overdriving the headlights."

Remember that handicapped people will take longer to make a crossing. Be especially careful of the blind, who will usually carry a white cane.

By the left flank, MARCH! But first look both ways.

WALK TALK

For pedestrians: For visibility at night, wear light colored clothes, preferably white. White can be seen for a much greater distance, warning the oncoming drivers to look for you. Another good idea is to wear something made with reflective material, like a headband, wristband or vest.

Again, never assume you've been seen. Watch cars as they approach and be ready to leap aside if they get too close.

Who's at fault? Interestingly enough, the majority of pedestrians killed in traffic violated a traffic law or commited an obviously unsafe act. This means a lot of them cross against the lights, or in the middle of a block, or without looking around adequately. But fault matters only after the fact, and we are trying to avoid that kind of act altogether.

For drivers: Expect the person on foot to do something foolhardy or even stupid. It won't always happen, but once in a while it will.

For pedestrians: Expect that the drivers going by do not see you and will hit you if you cross at the wrong place. Most often they will see you, but make it easier on both your nerves by using an intersection with a crosswalk and waiting for the light.

What about drinking and pedestrian deaths?

Of course, an unstable, drunken driver is more likely to hit a pedestrian than is a sober driver, but here is a significant fact: Of the adult pedestrians killed in accidents in 1983, nearly one fourth had been drinking. So it is not only the drinking driver who is a danger to himself. An intoxicated person on foot might stumble into the path of a car.

For drivers: Of course you should always watch out for anyone on foot, but be especially alert for anyone you see walking too carefully or weaving and wobbling on his feet. Drunken pedestrians can be unpredictable. (And another thing — don't drive at all when *you've* been drinking.)

For pedestrians: Even if you aren't going to drive, don't drink too much. Accidents happen even if you aren't the one holding a steering wheel.

A TALE of a SENSELESS TRAGEDY

Ed. Note: One of the daily tasks at DRIVER is to read the casualty messages describing the accidents and resultant injuries suffered by members. What follows is a different kind of casualty message. It is about a pedestrian accident that happened not to a servicemember but to a tiny girl. Yet it is the same as most of the messages we read every day because it tells of a needless loss. It is reported by Tina Palmer.

IT WAS THE MOST HORRIBLE NIGHT in my life. The flashing lights, the police, and all the "spectators." Why did it happen to her?

It was a warm summer evening, just before dusk. The pleasure of the night had brought everyone out of their houses into the parking area in front. It was the only place to gather in this six duplex-complex for evening get-togethers with neighbors, or for children to play.

There were a couple of neighbors outside, along with my sister-in-law, her husband, and their 16-month old daughter. My husband and I had just left for a little while. It wasn't a pretty sight to come home to. They said it all happened so fast.

My sister-in-law didn't hear the car start and neither did her husband, nor apparently her daughter.

And the driver of the car didn't see the little girl, nor hear the screams, until it was too late.

The police called it an "accident" and the driver was not cited. He had not been drinking and was not speeding. He was merely backing out of a parking place.

But why didn't he see her? He knew she lived in the complex and was frequently outside. Why didn't he take just one more look behind him?

But then why didn't her parents hear the car and insure she was out of the way?

Yet, there is no one to blame. It was an accident. We can only learn from this tragedy, even though the price was high.

I know I've learned. Since that night, I have become more aware of the small children who play outside. They can be anywhere, and usually are.

I have seen a ball bounce out in the street, with a child close behind. And I have watched children on bicycles dart off the sidewalks into the street. At times like these I get so angry at children but then I realize that they do not fully understand the dangers that lurk in the streets.

So how do I avoid them? I watch very carefully. I expect them to jump out almost anywhere.

I believe the most hazardous situation involving small children is backing out of a driveway. A small child could be sitting on his/her tricycle or standing on the sidewalk in your driveway, and small children are so short that they're almost impossible to see from inside a car. In this case, it would be best to get out of the car, look behind it *and* up and down the sidewalk. A child just may be coming toward you.

You would be surprised the damage a car can do to a child. Hit him with your bumper, knock him over and the tires do the rest. Or perhaps your bumper already put an end to that child's life. They are very fragile people.

If you think that hitting and killing a child could never happen to you, think again. The driver of the car that killed my niece was a neighbor and friend. I'm sure he never imagined ever killing a child.

Think of the pain, sorrow and anger caused. My brother-in-law was in shock for three days. He couldn't talk, eat or sleep. My husband tried to attack the driver. It took four policemen to restrain him. And all of us, since that horrid night in July, still cry for our little girl.

And who knows how you'll take it? You would have to live with the fact that you took away a precious and valuable asset to a lot of people, the life of a child, a human being. Seriously think about it. Could you live with that nightmare? Apparently the driver in our accident couldn't. He tried to commit suicide.

You ask "What about the parents?" Isn't it their responsibility to make sure their children stay out of the streets and path of cars? Parents already know how important it is to watch their children and they probably do everything possible to insure their child's safety. But sometimes it just isn't enough.

So please, drivers, it's up to you too. Watch out for the "little people." Their life depends on it.

The drive is on to set a standard minimum drinking age across the country.

The problem of drunk driving has received such attention lately that hard action is being taken to combat it. Here we will concentrate on just one aspect, the raising of the minimum drinking age across the country to 21.

In its final report in November 1983, the Presidential Commission on Drunk Driving made several recommendations, including the following:

"States should immediately adopt 21 years as the minimum legal purchasing and public possession age for all alcoholic beverages.

"Legislation at the Federal level should be enacted providing that each State enact and/or maintain a law requiring 21 years as the minimum legal age for purchasing and possessing all alcoholic beverages. Such legislation should provide that the Secretary of the United States Department of Transportation disapprove any project under Section 106 of the Federal Aid Highway Act (Title 23, United States Code) for any State not having and enforcing such a law."

Congress has passed legislation to withhold five percent of highway funds from states with lower drinking ages for the first year after Sept. 30, 1985, and 10 percent for each year after that. The president signed it into law July 17, 1984.

As of this writing 23 states have a minimum drinking age of 21. Four of those 23 states have raised the minimum age to 21 since the first of this year.

In view of the action by Congress and the president, we thought we should examine some of the facts that proved important to those who have encouraged this change in the national drinking age, and some of the common questions that have been raised:

Incentive: According to Dr. James Onder, a special consultant to the National Highway Traffic Safety Administration on the drinking and driving problem, one of the concerns behind this recommendation was the fact that in 1984, 19 states introduced, but did not pass, legislation to raise the drinking age to 21. He said the possible cutoff of highway funds would "add extra incentive for the states to pass such legislation."

Another reason for the push to raise the age to a national standard is the concern about the numbers of young people who cross state lines to nearby states that have a lower drinking age, Onder said. For instance, in New Jersey, 39 percent of the drivers who are involved in alcohol-related crashes are under 21. New Jersey has a drinking age of 21, but in neighboring New York the age is 19, he said.

An often-heard argument that has been used against the 21 drinking age is that it is not fair to take away the privileges of all young people because of the few who drink and drive. That would be a potent argument if it weren't for the statistics. A Departament of Transportation study showed that drivers under age 21 made up 9.7 percent of the total licensed drivers, and drove nine percent of the total vehicle miles, but made up 20 percent of the drinking drivers involved in fatal accidents.

Another fact: Teenagers account for about 15 percent of all alcohol-related crashes which end in fatalities yet they comprise only seven percent of the population. Sixty percent of all fatally injured teenage drivers are found to have alcohol in their blood at the time of the crash.

Other facts: Motor vehicle accidents are the leading cause of death of teenagers. Forty-five percent — nearly

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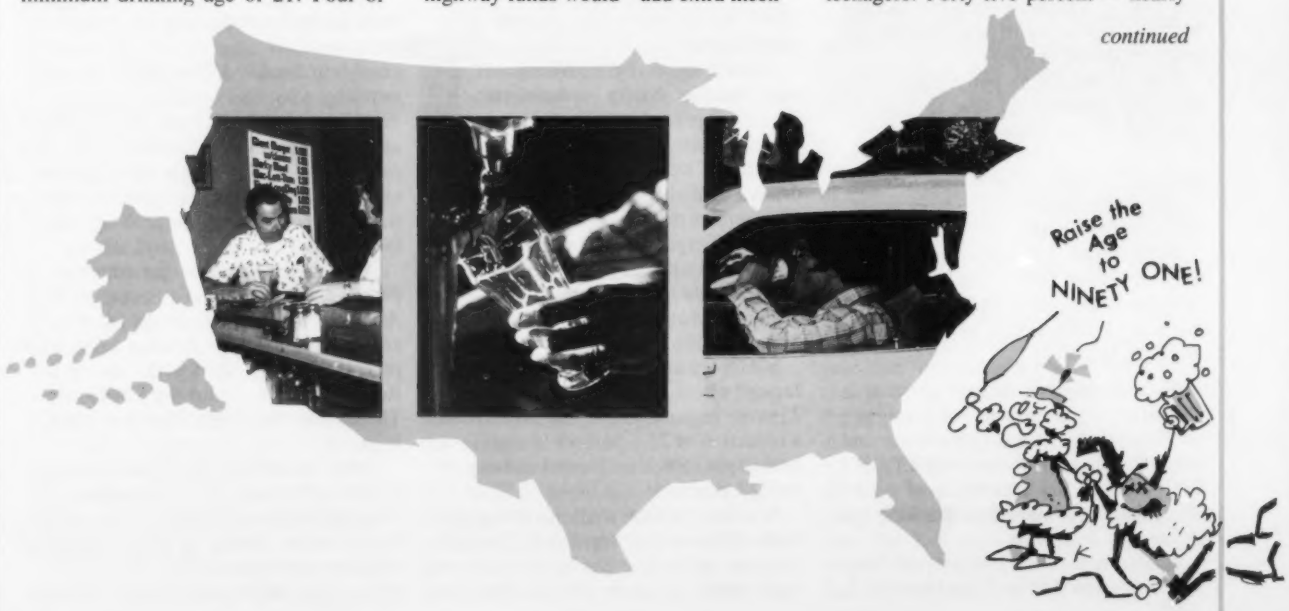

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half — of the teenage deaths each year are in automobiles. The next cause of death on the list, other accidents such as falls and drowning, makes up only 13 percent of the deaths for this age group.

More facts: The U.S. Surgeon General has reported that life expectancy has improved in the U.S. over the past 75 years for every age group except one. That exception is the 15 to 24-year old American, whose death rate is higher today than it was 20 years ago. And the leading single cause of death for this age group is drunk driving.

Why all these high percentages? The shocking statistics relating to younger drinking drivers shows that either they have more crashes because of "inexperience" with alcohol, or because many, many more of them drive drunk. We suspect the latter.

We'll insert an interesting statistic here: A Gallup Poll in December 1982 said that 58 percent of those age 18 to 20 favor the establishment of a minimum drinking age of 21.

Does it work? A natural question is "Does raising the minimum drinking age to 21 work in reducing accidents and deaths?" The answer seems to be "yes." Let's look at the experience of a few states that have raised their drinking age in the past few years.

In Michigan, the minimum drinking age was lowered from 21 to 18 in 1972. A subsequent study showed a 35 percent increase in alcohol-related crashes involving drivers between ages 18 to 20.

The minimum age was raised back to 21 in 1978. A report of the Highway Safety Research Institute found that this helped dramatically. The report showed that in 1979, alcohol-related crashes for the 18-20 group were 31 percent lower than expected. At the same time, those for the 21-24 group were nine percent higher than expected, and those for the 25-45 group were five percent over expectations.

Another report, by the National Highway Traffic Safety Administration, showed a reduction in accidents when Maine raised its minimum age to 20. Examining data on accidents to male drivers at night, the report showed an 18.6 percent drop in nighttime accidents to drivers age 18 and a 13.9 percent reduction for the 19-year-olds. Further, there was a decrease of 19.9 percent in single vehicle accidents at night for male drivers at 18.

NHTSA has also reported that New Jersey, which raised its drinking age to 21 at the beginning of 1983, has showed a reduction of 25.6 percent in nighttime fatal single-vehicle accidents involving 19 and 20 year olds.

Another NHTSA study involving the State of Illinois discovered an 8.8 percent decrease in single-vehicle accidents at night involving male drivers after the drinking age was raised from 19 to 21.

A report by the Insurance Institute for Highway Safety estimated that if the drinking age in all states was 21, 730 fewer young drivers would die each year in nighttime car accidents. The report further stated that any state that raises its drinking age will see a 28 percent decrease in fatal nighttime accidents for the affected age groups.

Old enough: A very common argument for the lower drinking age is "If I'm old enough to _____, I should be old enough to drink." Fill in the blank with anything you like — 'drive,' 'vote,' 'serve in the military,' etc. This kind of argument seems to suggest there is, or should be, an age where all rights of citizenship are yours. But, as Onder put it, "Twenty-one is no 'magical' age, any more than 18 is."

In most places across the country, a person can get a driver's license at 16. A U.S. citizen can vote at age 18. There are various ages for holding different public offices — 25 for the House of Representatives, 30 for the Senate, etc. There is no single age when everything is yours.

If the argument is "If I'm old enough to vote (or whatever), *I'm an adult* and I should be able to drink," that's a different matter. Being an adult suggests maturity and responsibility. The statistics of younger drivers and drunk driving

■ **Of 330 children born today in the U.S. — about the size of a small grade school — one will die and four will sustain serious or crippling injuries in an alcohol-related crash before they reach the age of 24.**

■ **Of the 25,000 persons who die each year in drunk driving accidents, 4,000 of those victims are teenagers. That means that 11 teenagers die each day in drunk driving accidents.**

■ **Teenage drivers are involved in one out of every four injury accidents, with a total of 650,000 injured teenagers in 1980. Alcohol is involved in close to 20 percent of injury-producing accidents, which means that 130,000 teenagers are injured per year in drunk driver accidents. So, 360 teenagers are injured in alcohol-related crashes per day.**

accidents suggest immaturity and irresponsibility.

There is the argument that it is unfair to take away the rights of those who can already drink legally. Dr. Onder suggested this could be handled by raising the age in one-year increments. That way, the age could be raised without taking away anyone's rights.

One benefit of the raised minimum drinking age is with underage drinkers. Onder said, "Twenty-one puts alcohol further out of the reach of the teenagers aged 15, 16 and 17, and delays their first incidence of drinking. The kids these ages usually rely on their older friends to buy alcohol for them."

The idea is that their under-21 friends will be unable to get the alcohol for them and they are less likely to have friends in the 21-and-older group. "No one is so optimistic as to assume we'll stop all illegal drinking," said Onder, "but we can reduce it." Also, no one things 21 is the miracle cure for the drinking and driving problem. It is not; but it is part of the solution.

In addition to separating the underage drinkers from their potential source of supply, the 21 drinking age would separate the drinking age and the driving age. Although not identical, the two ages are close enough that young people begin doing the two activities almost at the same time.

"The way things are," Onder said, "they see the two things (drinking and driving) as being inextricable related."

Delaying the drinking age will mean that those who drink will be just that much more mature and, hopefully, that much less likely to abuse alcohol, or drink and drive.

"Younger drivers tend to drive more miles for social purposes than adults and spend lots of their social time in the car," Onder said. "They also drive socially at high risk times, at night, when they are more likely to encounter drunk drivers."

Alternatives? A logical question that comes up is about the alternatives to raising the drinking age. One suggestion often made is to increase efforts at education on the drunk driving problem. While this is a good idea (and indeed is one of the aims of this publication), it takes time. Writing about this subject for the State of New York's effort to raise its drinking age, Prof. Louis Munch of Ithaca College said, "Changing knowledge and even attitudes is one thing, but behavioral change is difficult to achieve. Modifying attitudes and norms with respect to behavior are long-term propositions, while raising the legal drinking age produces immediate, lasting results."

The other major solution suggested to the drunk driving problem is stepping up efforts at enforcement. Presently, between one in 200 and one in 2000 drunk drivers with a Blood Alcohol Content (BAC) of .1 or higher are arrested per night. That's not a high percentage.

And here's the catch: The goal is to *prevent* drunk driving. In order to do that through enforcement, not only do the authorities have to arrest more drunk drivers, but potential drunk drivers have to know that their chances of getting caught are high. That is the only thing that will discourage their driving under the influence.

In the service: That's the situation with the U.S. population generally. The military services have a large number of individuals in the ages that would be affected by a raise in the drinking age to 21. Currently, the service regulations give installation commanders the authority to allow the purchase and consumption of malt beverages at a lower age. This may change.

Navy Capt. Roger McFillen, Senior Policy Analyst for Drug and Alcohol Abuse Prevention, gave us some important facts that relate to the military. A survey in 1982 showed that frequent heavy drinking occurred most often in the E1 to E5 group. This group (40 percent) shows the highest productivity loss due to alcohol abuse. Nine percent of this group are described as "alcohol dependent."

Traffic accidents kill more military people than any other cause. They cause three times as many deaths as the number two killer, heart attacks.

Those with the worst fatality rates are teenagers, males and nighttime drivers.

McFillen said if all DOD installations were to follow the guidelines of the state in which they are situated, 150,000 military people would lose their right to purchase and consume beer. That is only 11 percent of the total military population. Further, the majority of those — 82,000 — are stationed in four states that already have a minimum drinking age of 21, McFillen said. Those states are California, Illinois, Kentucky, and Oklahoma.

The House of Representatives Committee on Appropriations suggested last year that the Department of Defense change its regulations so that the drinking age on military bases is the same as in the state in which they are located.

DRIVER is sure that the raising of the drinking age will create a lot of controversy. Many may disagree with the action, but it is hard to dispute the decreased accident statistics in those states that have already made the move to 21.

Large trees and decorative plantings at Keesler occasionally make visibility a problem.

DRIVING at KEESLER AFB

by Capt JIM BATES

Keesler Air Force Base, located in the heart of Biloxi, Miss., is an installation that poses some unique challenges to drivers.

Like most of south Mississippi, Keesler is a garden spot, with lush green lawns, ornate plantings and a veritable forest of trees. The buildings are shaded by tall pines, stately magnolias; streets curve respectfully around century-old live oaks. Palms of various types and a variety of shrubs are planted around buildings and street corners. All these plantings occasionally create a visibility problem since cars and pedestrians are often hidden from other driver's view.

The main thoroughfare of the base, Larcher Blvd., is a four-lane divided street. A wide, tree-shaded island separates north and southbound traffic. Left turns require careful attention — both on-coming lanes must be clear for a safe turn. Larcher sustains a constant heavy traffic flow. Besides being the main entrance to the base, it passes the most heavily-used facilities on base, including the officer's club, visiting officer's quarters, a chapel, the commissary, theater, base exchange, credit union, library, visiting enlisted quarters, base service station and ends at Eye Street, in front of the second largest hospital in the U.S. Air Force.

An aspect of Keesler that can confuse the newcomer is angled streets. Another main thoroughfare, A Street, intersects Larcher and then proceeds at a 45° angle for nearly a mile. Every intersection along this stretch is at an angle. Left and right turn lanes and painted arrows make sense of this confusing arrangement if one heeds them.

Angled intersections are also found in the base's student dormitory area, aptly named the Triangle. Limited parking spaces and many pedestrians create considerable congestion here.

Most of Keesler's 6,000 technical training students live in the Triangle. Some of the classrooms and school buildings are located outside the Triangle.

When training shifts change, several hundred students march in formation down the streets to and from the

Keesler's Larcher Blvd. is a four-lane divided street.

Editor's Note: This is the second of a series of articles about driving conditions at ATC technical training centers.

Larcher Blvd. is divided by wide tree-shaded islands.

Angled Intersections on A Street at Keesler require close attention.

Triangle. Road guards control traffic, and students carry flashlights during hours of darkness. Drivers must heed the road guards and stop for troop formations.

Weather creates driving hazards on Keesler and in the surrounding community. High humidity causes dense fog in the winter and thunderstorms in the spring and summer. The elevation is quite low and the water table high, so when heavy rains come, standing water quickly accumulates and takes a long time to drain away. Not only is visibility impaired in heavy rain, but hydroplaning can occur. Stalling in deep water can also be a problem.

U.S. Highway 90, the major thoroughfare a few blocks south of the base, was named one of the 10 most dangerous highways in the nation by the Department of Transportation and poses problems not found in many parts of the country. The highway parallels the beach, where sailboats and sunbathers can be a distraction. (Especially, says one Keesler dependent, when the "sailboats" her husband is watching are playing volleyball.) Numerous tourist attractions, condominiums, resort hotels and restaurants border the highway, requiring constant driver vigilance for pedestrians crossing to the beach. The large number of night clubs and bars necessitates defensive driving, especially at night.

Traffic on Highway 90, as in other parts of the surrounding communities and portions of Keesler, is regulated by "smart" traffic lights. These lights are

continued

Drivers at Keesler must heed road guards and yield to troop formations.

Heavy rains are common along the gulf coast.

continued

controlled by electromagnetic sensor loops in the pavement rather than a preset schedule and respond to cars at the stopline. They can appear bewilderingly unpredictable. Also, a red light will not change to green unless you are inside the sensor loop. Bikes should stop as close as possible to the top of the loop, since motorcycles have less metallic mass to trigger the sensor.

Biloxi's famed seafood industry poses a challenge to drivers and bikers alike. Drawbridges span most of the bays and bayous in the local area and are frequently open to allow fishing and shrimping boats to pass, causing sudden stops.

The center spans of most of the drawbridges have grated surfaces. These can present a particular hazard for two wheelers. Slow down slightly and keep a firm grip on the handlebars. Anticipate some vibration, and try to maintain a constant speed while on the grate.

Keesler Air Force Base and the Mississippi gulf coast pose some unique challenges to the driver, but these can be overcome by driving defensively and paying attention to weather and road conditions.

Traffic signals are controlled by censor loops in the pavement.

Draw bridges on Highway 90 are frequently opened for fishing boats.

(left)
Numerous tourist attractions create heavy pedestrian traffic across the highway.

The center, high-mounted stop light on this 1985 Cadillac Fleetwood Coupe will be required standard equipment on all 1986-model cars sold in the United States. Numerous tests have demonstrated this light's effectiveness in reducing rear-end collisions.

MOVING *quickly*

On Oct 13, 1983, the National Highway Traffic Safety Administration issued a rule requiring the use of center high-mounted stop lamps on all cars beginning with the 1986 model year. The automakers immediately petitioned the agency to reconsider some technical requirements in the regulation, and on May 17 NHTSA announced a revised rule. Flexibility incorporated into the revised rule included the intensity required for the light, its position on the car, and the amount of reflection allowed from it.

On June 18, General Motors became the first automaker to say that it was making the high-mounted stop lights available on a number of its cars far in advance of the U.S. government regulations.

Shipments of the new lights from GM's Guide Division in Anderson, Ind., to dealers for installation on some vehicles currently on the road started immediately. Factory installed lamps will be available on other models beginning this fall.

GM Chairman Roger B. Smith, in disclosing GM's plans for the center, high-mounted stop lamp, said, "We are moving more quickly than required to demonstrate our support for this regulation which should reduce the incidence of rear-end collisions in heavy urban traffic."

Smith outlined these plans for use of the lamp in advance of the regulation which mandates them on all 1986-model cars:

- Standard equipment on 1985, front-wheel-drive Cadillac DeVille and Fleetwood models produced after September.
- Optional, factory-installed equipment on 1985, front-wheel-drive Oldsmobile 98s and Buick Electras produced after the same time.
- Optional, factory-installed equipment on 1985 Chevrolet Celebrity, Pontiac 6000, Oldsmobile Cutlass Ciera and Buick Century sedans and coupes.
- Optional, factory-installed equipment on three new, front-wheel-drive coupes to be introduced this fall — the Pontiac Grand Am, Oldsmobile Calais and Buick Somerset Regal.
- Available soon in kit form from GM's Warehousing and Distribution Division for retrofitting by dealers to 1982-84 Celebrity, 6000, Cutlass Ciera and Century coupes and sedans.

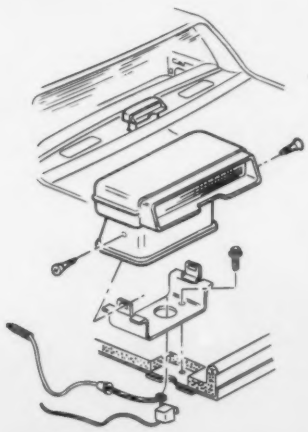
The suggested list price for the retrofit kit is $38 and installation would cost an estimated $30. Prices for the optional, factory-installed light will be announced when suggested prices of 1985-model cars are disclosed prior to introduction this fall.

Initially, the new lamp will be mounted inside and low in the center of the car's back window, with a special, light-shielding gasket. But Smith said GM plans to integrate the light into its car's designs in the future. This integration, he added, will now be possible under the amended regulation.

CENTER HIGH MOUNTED STOP LAMP

DESIGN

- **LOCATION OF ENTIRE LENS**
  - **On centerline**
  - **Front top of backlite to 3 inches below**
- **AREA: 7 SQUARE INCHES**
  - **Exceeds the minimum requirement of 4½ square inches**
- **VISIBLE 45 DEGREES RIGHT AND LEFT**
- **INTENSITY: 100 cd**
- **BULB REPLACEMENT WITHOUT SPECIAL TOOLS**
- **"NO" REFLECTIONS**
- **DUAL LIGHTING FUNCTION:**
  - **Used in conjunction with brake light and hazard warning flasher.**



LAWS?

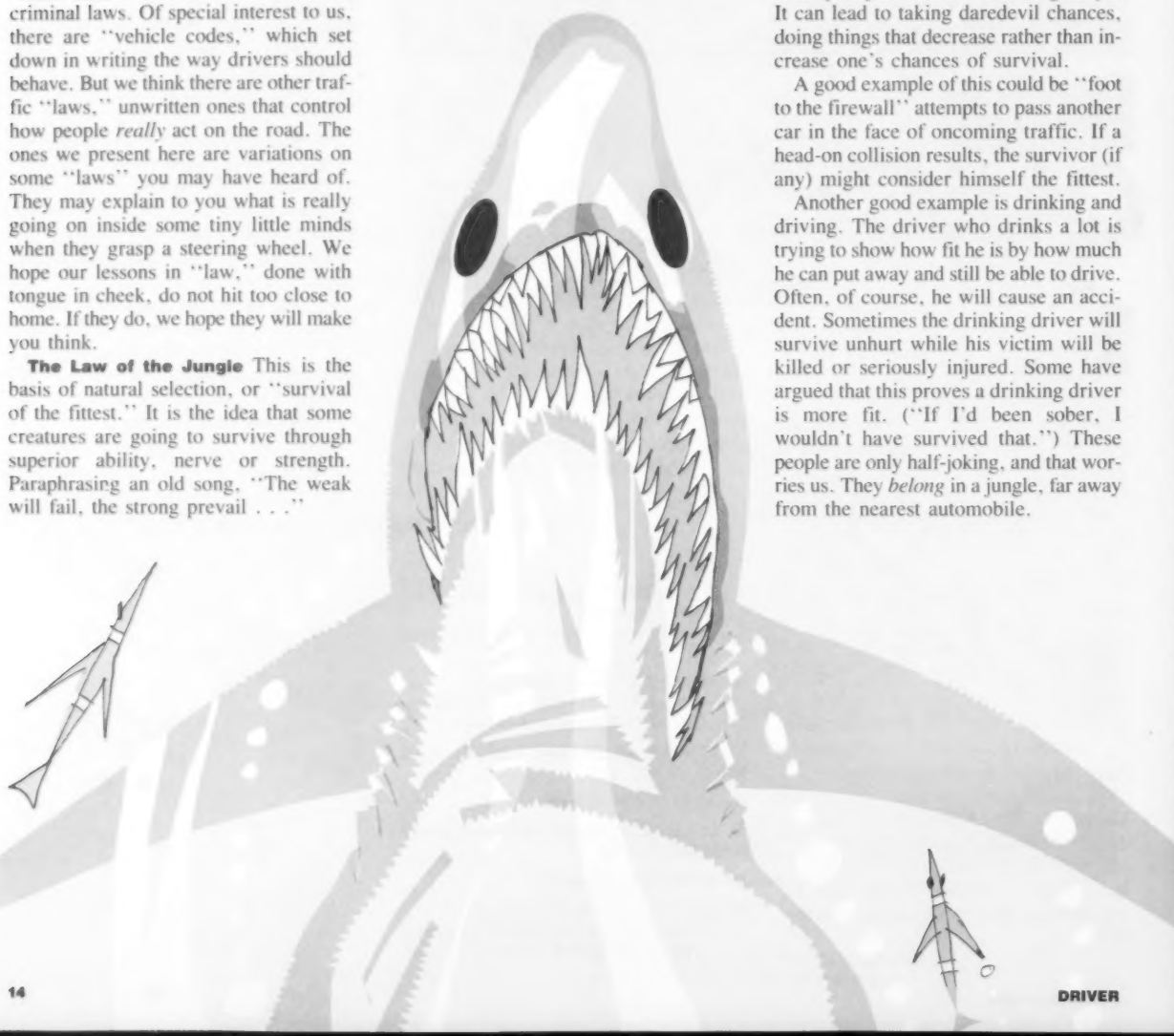
We've noticed that there are laws governing everything — natural laws, civil laws criminal laws. Of special interest to us, there are "vehicle codes," which set down in writing the way drivers should behave. But we think there are other traffic "laws," unwritten ones that control how people *really* act on the road. The ones we present here are variations on some "laws" you may have heard of. They may explain to you what is really going on inside some tiny little minds when they grasp a steering wheel. We hope our lessons in "law," done with tongue in cheek, do not hit too close to home. If they do, we hope they will make you think.

The Law of the Jungle This is the basis of natural selection, or "survival of the fittest." It is the idea that some creatures are going to survive through superior ability, nerve or strength. Paraphrasing an old song, "The weak will fail, the strong prevail . . ."

This law appears to be true in the animal world, but similar thinking causes some pretty odd stunts on the highways. It can lead to taking daredevil chances, doing things that decrease rather than increase one's chances of survival.

A good example of this could be "foot to the firewall" attempts to pass another car in the face of oncoming traffic. If a head-on collision results, the survivor (if any) might consider himself the fittest.

Another good example is drinking and driving. The driver who drinks a lot is trying to show how fit he is by how much he can put away and still be able to drive. Often, of course, he will cause an accident. Sometimes the drinking driver will survive unhurt while his victim will be killed or seriously injured. Some have argued that this proves a drinking driver is more fit. ("If I'd been sober, I wouldn't have survived that.") These people are only half-joking, and that worries us. They *belong* in a jungle, far away from the nearest automobile.



THE LAW OF THE JUNGLE

THE LAW OF AVERAGES

THE CODE OF THE WEST

MOB RULE

Just when you thought it was safe to drive the way you want . . .

The Law of Averages This states that if you keep trying something long enough, you will succeed. Babe Ruth had the home run record for many years — and he also had the record for strike-outs. To do that, he had to swing at an awful lot of pitches.

One way to look at the law of averages is to say that if you tempt fate enough times, it will get you. With respect to driving, if you speed enough times, you will get a ticket from an obliging policeman. If you follow cars too closely as a habit, sooner or later your grill will eat a trunk. If you always move your car without first looking around, sooner or later someone will drive by and remove part of it for you.

Some drivers think that is too negative a way to look at it, and they like to say they are trying to get around the "Law of Averages," or "beat the system." They habitually race at the end of yellow lights, creep through stop signs, speed, do any number of illegal and/or dangerous things, thinking they're gambling with the odds in their favor and nothing will happen.

We think gambling with 3000-pound dice is a little dumb. But let's be positive. These people aren't trying to beat the "Law of Averages"; they're trying to *prove* it. They are trying to get caught by the police, or to smash up their cars, and they know the more times they try, the more likely they are to be successful.

The Code of the West Actually, we don't remember what this expression meant to John Wayne and people like that, but in automotive circles it translates to something like "This road ain't big enough for the both of us." In other words, if there's a difference of opinion on who has the right of way, you take it. The concept comes from the American west, where early settlers became upset at the advance of civilization if someone moved in 15 or 20 miles away.

"The Code of the West" seems to be in effect everywhere. At intersections, the first one at the corner doesn't always get the right of way; usually it's the one who is the most impatient, or who dares anyone else to try. On the highway, if there is the slightest space available for someone to slip his car between two others, he will usually do it. In a parking lot, a "Code-of-the-Wester" will drive against the painted arrows, and then glare at those traveling in the right direction.

In more modern terms, this could be called "invading one's space." Fortunately, once in a while the guardians of the real law will find these people and invade *their* space. Also their pocketbooks, with a ticket for a moving violation.

Mob Rule This is setting the standard by not the greatest number of people but the most noticeable. The underlying thinking is "Why not? Everybody's doing it." It is the thinking that inspired such things as car chase movies, Volkswagen stuffing and "new wave" clothing and hairstyles.

In the world of driving, it is what leads to speeding. Some people see one or two people exceeding the speed limit, or perhaps a lot of people, and assume "Everybody's doing it." Of course, speeding does seem to be more the norm than the exception these days. Try driving at the posted speed limit, especially on the highways, and see what percentage of the other cars pass you. We'll bet it's more than 50.

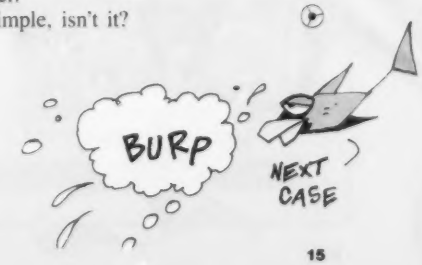
The trouble with "Mob Rule" is it doesn't set a standard that you can count on. "Mob Rule" sets the speed at the whim of the drivers, with no thought about amount of traffic, road conditions, or other factors that might favor something slower.

The "Mob Rulers' like to argue in favor of their favorite excessive speed with statements like "The cops can't stop everybody." True enough. But they can stop some, and that could include you.

All these "laws," to one degree or another, betray a lack of concern for others, a "me first" attitude. They're fine if everyone stays out of your way. However, many times people are unwilling or unable to do that, and sometimes both. What then? We want to offer another suggestion that might help. As you might expect, it's another well-known "law."

The Golden Rule This states "Whatever you want others to do for you, do so for them." You could reasonably base all the real traffic laws on that one. You want people to respect your right of way, so respect theirs. You want people to drive at a sensible speed so that you're not endangered, so drive that way yourself. You want all the other drivers to be sober and alert, not weaving all over the pavement, so don't you drink and drive either.

Simple, isn't it?



by Maj. R.H. DOUGHTY
3 TFW Chief of Safety

ATTENTION Fighter JOCKS:

If you are a fighter jock, don't read this. You already know the story. This is a story about seat belts.

It is amazing that some people do not use their seat belts, even though everyone knows that seat belts limit injuries and save lives of those that become involved in auto mishaps.

A fighter jock knows about another important aspect of seat belts. Any fighter jock will tell you that when you slip into the cockpit and "strap on the jet," a snug seat belt gives you a feeling of freedom instead of restriction — freedom because you get the sensation that you are a part of the airplane rather than just a passenger. This really becomes important when the maneuvering gets rough — there would be no way to fly the jet if you weren't strapped down at the controls.

The same is true in your auto. In many auto mishaps, after initially losing control and running off the pavement, the driver would have had a good chance to regain control if a seat belt had been used so the driver could have remained in front of the steering wheel. When an auto leaves the pavement and the ride gets rough, without a seat belt the driver is often bounced out of the driver's seat and unable to reach the steering wheel or brake to regain control. Investigators determine that this was most likely the case in a recent one-car mishap at Clark AB that was fatal to the driver and passenger not wearing seat belts.

No fighter jock would even think about launching in a jet without a seat belt. Fighter jocks know that the same rationale applies to their cars. You won't see a fighter jock drive his sports car even around the block without a seat belt.

You too can experience that same secure, in-control, part-of-the-machine feeling that a fighter jock knows when he "straps the jet on." Buckle up. You'll like it.

tteecc!h!h

double tech with tsgt ron lathrop

COMMENT: Reference "The Backyard Mechanic" page 22, May 1984 edition of DRIVER Magazine. I take exception to your recommendation that if a battery is within six months of warranty expiration, buy a new one!

As a long time driver (approximately 40 years) of trucks, motorcycles, recreational vehicles and automobiles, I have yet to have a battery fail within its warranty period, and in most cases, with proper care and maintenance, they far exceeded warranty. As a matter of fact I am presently using a battery that came in a 1976 model vehicle, and after more than five years beyond warranty expiration date, it is still going strong.

My point: There are ways of checking a battery (other than warranty expiration date) that should be explored prior to going to the expense of purchasing a new one. I feel that your article will cause our younger airmen to expend unnecessarily, and in some cases funds that they can ill afford.

Perhaps a correction to DRIVER Magazine would be appropriate.

REPLY: Granted there are tests that will tell you the present condition of your battery. But these tests won't tell you how good the battery will be three months from now when you go to start your car in the middle of Texas after a roadside lunch 107 miles from the nearest service station.

Apparently your efforts have paid off for you AND you've been very, very lucky, also.

Battery warranties are part of an overall marketing program designed to keep you buying batteries from

the same company. The idea is that with normal care the battery will die before the warranty expires. Then you, the customer, will come back to the appropriate dealer for a warranty replacement. Of course, the amount of price adjustment that close to the end of the warranty is slight.

The end result is that the company has sold you another of their batteries rather than you having taken your business elsewhere.

In most cases, it is far less expensive to replace an item before it fails than to undergo the cost and inconvenience of an in-service failure.

COMMENT: I tuned my car's engine by the vacuum gauge method as outlined in one of your articles, following the procedure as written in the article. After obtaining the highest reading possible on the gauge, and resetting the idle speed, the timing mark is now 6 to 8 degrees or more from the "specs." Just how far is it safe to advance the timing in this manner?

REPLY: That depends on several factors. If your car has emissions controls, I wouldn't go more than two degrees ahead of manufacturer's specifications. On older model engines, I'd avoid anything more than 10 degrees from the original specifications.

However, this all depends on the timing mark being correct in the first place. What you need to do is remove the number one spark plug and with a depth gauge raise the piston to its highest point on the compression stroke. At that point, check and make sure the timing mark is at TDC (top dead center) or zero degrees.

If the timing mark is off, then you're going to have to adjust accordingly. For example, if when the piston is at TDC the timing mark is at 2 degrees ATDC (after top dead center) your ignition timing is off the same amount. Say the specifications call for firing at 8 degrees BTDC (before top dead center); then to obtain this actual timing you're going to have to set the timing mark at 6 degrees BTDC.

EDITOR'S NOTE: If you have a general interest automotive question that you would like answered, and feel others could use the knowledge too, send it to:

Double Tech
DRIVER Magazine
HQ AFISC/SEDD
Norton AFB, CA 92409

countersteering

BY ANY OTHER NAME STILL RESPONDS THE SAME

Countersteering — or push steering, as it is becoming known — is something most motorcyclists already do. However, a problem develops in emergency situations when inexperienced riders attempt to *steer* around a hazard rather than countersteer out of danger.

Those motorcyclists who have been taught countersteering through any of the many hands-on training programs have practiced it as an emergency maneuver and will usually respond accordingly when required.

Countersteering is simply the best method available for getting out of harm's way. As was pointed out earlier, most riders already use push steering but may not be aware of it. Yet, with understanding *and* practice countersteering can become second nature to the motorcyclist.

Push steering is no different from other skills. It requires the rider to first practice at relatively low speeds. After gaining understanding and practice, countersteering may be used at any speed.

Even the most knowledgeable riders who don't understand countersteering tend to minimize its importance. They often believe the inward leaning of the motorcycle is the result of their body lean being transferred to the motorcycle through the hands against the handlebar, feet on the footpegs and knees against the gas tank.

Until the Motorcycle Safety Foundation undertook "The Photographic Analysis of Motorcycle Operator Control Responses" in 1976, the role of countersteering and weight shifting in normal turns was relatively unknown. Previous studies had been unable to assess these roles since they had not attempted to measure the body motions of the operator.

The previous studies had shown that sharp turns were preceded by a steering input which deflected the front wheel outward, away from the direction of the intended turn: countersteering. This caused the motorcycle and operator to lean inward, thus allowing gravitational forces to counter the outward forces developed during the turn itself.

Although many motorcyclists are oblivious to it, the initial countersteering is essential in developing the quick inward lean required for a sharp turn. A second countsteer occurs at the end of the turn. The front wheel is steered more sharply into the turn to bring the wheels back under the motorcycle and straighten it up.

In the 1976 MSF study three variables were found to be of prime importance for controlling turns: steering angle, motorcycle lean angle and body lean angle.

To see what happens during countersteering, let's examine a "normal" turn with a 20-foot radius. Although relatively sharp, a turn of this radius is similar to making a right turn at an intersection.

As the motorcyclist approaches the right-hand turn, s/he applies pressure (pushes) the right handlebar. Momentarily the front wheel goes left which forces the motorcycle to lean to the right — into the turn.

The MSF Photographic Analysis found that there is a close relationship between the steering angle and motorcycle lean angle. While the countersteer appears at the beginning of the steering angle, the motorcycle doesn't begin to lean to the right until approximately one-half second later. Once the motorcycle has started leaning to the right, the operator can then turn the handlebar to the right to begin the right-hand turn.

If the initial countersteering input was not enough to obtain the correct turn radius, the motorcycle's lean angle is going to lag behind the steering angle during the first second of the turn. In other words, failure to develop enough lean early in the turn will prevent the rider from steering sharply enough to maintain the desired course.

In this case it will be about 1.5 seconds into the turn before the motorcycle will be leaning enough (about 15 degrees) to allow the rider to turn more sharply. As the motorcycle's lean angle increases, the operator is able to turn more sharply and the steering angle also increases. Between 1.5 to 2.0 seconds the steering angle would be increased from seven degrees to almost 20 degrees. Meanwhile the motorcycle lean angle would increase to a maximum of approximately 35 degrees.

At this point of maximum motorcycle lean the operator keeps turning the handlebar further in the direction of the turn. This second "countersteer" causes the motorcycle to begin to straighten up.

As the motorcycle begins to return to the vertical, the rider decreases the steering angle. By the time the motorcycle reaches a straight up and down position, the operator has the handlebars pointed dead ahead (zero degrees steering angle) and the motorcycle is traveling in a straight path.

FIG A

FIG B

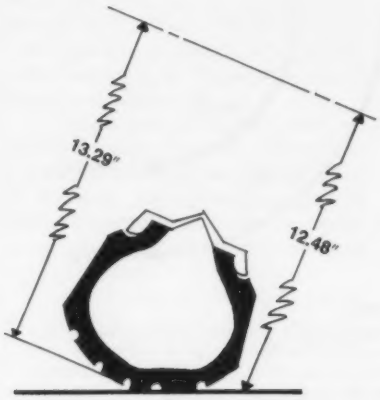


FIG C

Fig A
Note the curve of the tread design on a typical motorcycle tire which helps the bike turn when leaned.

Fig B
Motorcycle tire cross-sections generally resemble this when the bike is upright. All distances from the hub centerline to the ground are the same.

Fig C
When leaning, the motorcycle tire cross-section has a different contact surface with the road. This contact patch has many different radii from the largest on the left to the smallest on the right.

It must be noted that it is the amount of time put into the countersteering rather than the force of the push that varies the turning radius. Short countersteers lasting about one-eighth second are for gentle turns, while sharper turns may require as much as a full second of countersteer. The countersteering steering angle is usually only about two degrees.

The actual steering angle in the turn varies with the turn radius. For a 50-foot radius turn the steering angle may be only eight degrees, while for a 10-foot radius turn the angle may be as much as 40 degrees.

Because speeds vary with turning radii (the sharper the turn, the slower the speed), the outward force developed in turns is relatively constant. For that reason, the maximum lean angle is approximately the same for all turning maneuvers at about 35 to 40 degrees.

The third variable to be of prime importance in controlling turns is body lean angle. This is measured in relationship to the motorcycle, not the ground. Usually the operator will lean slightly in the direction of the intended turn at the exact time of the countersteering input. This initial lean is so slight that it is hard to believe that it could have much effect on the motorcycle. It probably simply reflects the operator's anticipation of the upcoming lean of the motorcycle. Within one-half second of leaning into the curve, the rider's body begins to lag behind the lean of the motorcycle. In other words for this right-hand turn the motorcycle is leaning more to the right than the rider's body. The rider's body lean continues to lag behind the motorcycle's lean angle. When the motorcycle reaches a maximum lean angle of 35 degrees, the operator is eight degrees more upright than the motorcycle (or leaning only 23 degrees into the turn).

In almost all turns the operator's lean angle will be about one-third less than that of the motorcycle.

Again in anticipation, the motorcyclists will begin to straighten up about a half-second ahead of the motorcycle. As with leaning into the turn at the beginning of countersteering, there is no way that this leaning could help to bring the bike to an upright position.

When the motorcycle is at a relatively small lean angle, braking will reduce the bike's speed which, in turn, helps reduce the outward force upon the machine and rider and will increase the lean angle.

Similarly, accelerating out of the turn does just the opposite — increasing the outward force — and helps bring the motorcycle to an upright angle.

The only difference between a lightweight and heavyweight motorcycle is that the operator tends to make fewer and smaller steering corrections with heavier machines.

continued

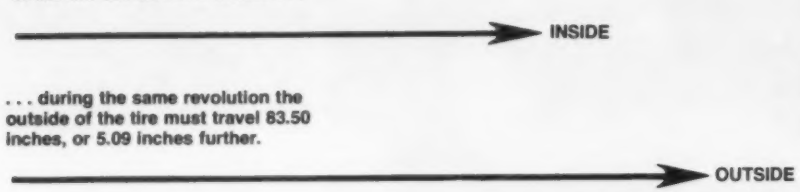

In one complete revolution the inside of the tire covers 78.41 inches . . .
INSIDE
. . . during the same revolution the outside of the tire must travel 83.50 inches, or 5.09 inches further.
OUTSIDE

Fig D
The different radii mean that certain parts of the tire must cover more ground in a single complete revolution of the wheel than other parts of the tread. As you can see, this is impossible in a straight line.
In one complete revolution the inside of the tire covers 78.41 inches . . .
. . . during the same revolution the outside of the tire must travel 83.50 inches, or 5.09 inches further.

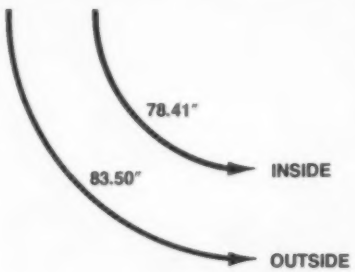


Fig E
However, if the wheel (and the bike) follow a curving path, a portion of the tire can and must cover more ground than other portions of the tread.

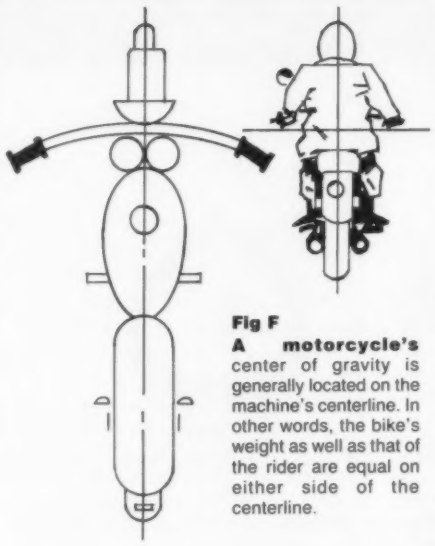


Fig F
A motorcycle's center of gravity is generally located on the machine's centerline. In other words, the bike's weight as well as that of the rider are equal on either side of the centerline.

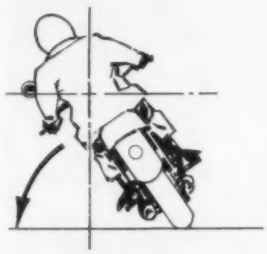


Fig G
Leaning a motorcycle shifts the center of gravity into the lean angle. Without regard to forward motion, gravity wants to pull the machine down.

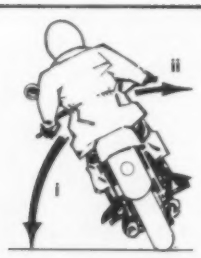


Fig I
A balancing act results between gravity and centrifugal force on a leaning motorcycle. If gravity is greater (i) the bike falls, while should centrifugal forces exceed gravity (ii) the bike straightens up. Both gravity and centrifugal force can be increased or decreased by changing the bike's speed, lean angle or turning radius.

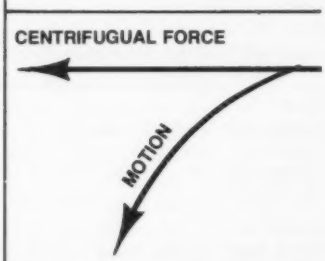


Fig H
Centrifugal force is one of physics' balances, wanting to straighten out all curving motions.

Basically, according to the 1976 MSF study, countersteering is an effective component of any motorcycle turn. It is one of the means by which the motorcycle roll or lean angle necessary for the turn is initiated and eliminated. The operator's body lean lags behind the motorcycle's roll angle and generally reaches a maximum of about two-thirds the angle of the motorcycle.

Additionally, most riders lean slightly in the direction of a turn before initiating it and begin to straighten up before coming out of the turn. The lean is not sufficient to affect the roll angle of the motorcycle but may be perceived by the operator as having an effect.

Countersteering works because of a gyroscopic action involving two simple laws of physics. The first is that anything that is moving wants to keep moving, and anything that is at rest wants to stay stopped. The second law is that anything that is moving in a certain direction wants to keep moving in that particular direction.

When you spin a child's toy called a top it seems like it is going to go on spinning forever (the first law) although friction with the air and surface it is on will eventually grind it to a stop. It will also stand upright as long as it is spinning relatively fast (second law). Give a spinning top a quick push and it will lean over momentarily and then return to its straight-up position. However, if you carefully lay it over it will stay at the angle to which you leaned it.

The wheels of a motorcycle work the same way, except they are spinning perpendicular to the ground whereas the top is spinning horizontally. Likewise, the motorcycle wheels want to continue to spin straight down the road. They resist efforts to force them to change direction or lean. Momentarily pushed into a lean, the wheel will right itself. Yet once forced to lean, it will remain leaning.

Why does leaning cause a motorcycle to turn? Because of tire design. When the wheel is leaning, the outside of the area where the tire touches the ground is running on a larger diameter than the inside. As a result the outside of the tire must cover more ground than the inside each time the tire does a complete revolution. The only way this can happen is if the bike turns. See figures A, B, C, D, and E.

OK, a moving bike wants to continue along in a straight line and upright. If we lean it over momentarily, it will straighten up again. If we force it to lean, it will remain leaning. And once the wheel leans, the bike turns in the direction of the lean.

So far we've talked about inertia (the tendency to continue moving or stay stopped) and gyroscopic (retaining the axis of the plane of motion). To complete the circle we must now talk about the center of gravity and centrifugal force.

The center of gravity is the point around which all the machine's weight is centered. This is another thing that helps keep a motorcycle running in a straight line. If you draw an imaginary line from the center of the front wheel to the center of the rear wheel while looking straight down on a motorcycle, the center of gravity would probably be somewhere on that line (see figure F). What this means is that gravity is pulling evenly on each side of the bike, and therefore the bike (when moving) doesn't want to fall to one side or the other.

If you now tilt the machine to one side, the center of gravity will shift to that side. At this point, with one side of the motorcycle heavier than the other, gravity wants to pull the heavier side down without regard for forward motion (see figure G).

And the bike *would* fall over if it weren't for the centrifugal force.

You'll recall, when we lean a bike over it starts to turn. But the laws of physics don't like going in circles, preferring striaght lines instead. The end result is centrifugal force pushing to straighten the circle (see figure H). Remember the top wants to straighten up.

The further you lean the bike over, the greater the pull of gravity. The further you lean the bike over, the tighter the circle becomes. The tighter the circle, the greater the centrifugal force. The higher the speed used in the turn, the greater the centrifugal force.

It's a balancing act. Gravity is pulling the bike down, centrifugal force is trying to straighten it up. If you lean the machine too far over at too low a speed or in too shallow a corner, gravity wins and you fall over. On the other hand, if you are going too fast for the lean angle, centrifugal force will win, the bike will straighten up and run off the outside of the curve (see figure I).

Countersteering works because as the handlebar is pushed left, the motorcycle tries to go left, but centrifugal force pushes it into a right lean to make the machine continue on a straight path. With the bike leaning right, it of course must turn right. The longer the rider keeps the handlebar turned left the lower the lean angle will become. Allowing the handlebar to return to a centered position will hold the bike at whatever lean angle it has reached, assuming that the speed is enough to counter the pull of gravity with centrifugal force (see figure J). To return the motorcycle to an upright and straight path the rider either opens the throttle so that the centrifugal force exceeds the pull of gravity or turns the handlebar to the right.

Now we've gone full circle: Everything resists change. As long as the motorcycle is going in a straight line, the laws of physics are fat, dumb and happy (Editor's note: Just like technical editors). But when you attempt to change the straight line motion, several forces come into play to right the motorcycle. Using this resistance to change is what countersteering is all about.

Fig J

Countersteering happens as the bike is going along a straight line. First the handlebars are pushed right. As the bike tries to go right centrifugal force pushes it into a left lean. Once leaning left, the motorcycle turns left.

TRUE ACCIDENTS

Following are a few reports of accidents involving Air Force members. We have removed names and references to dates and places.

ROLLOVER

An airman with a passenger was driving on a single lane asphalt road posted at 35 mph. He had started work at 0600 and hadn't eaten since breakfast, so he was fatigued. It was 1620 and he was in a hurry to reach the credit union before it closed for the weekend. The vehicle was traveling at 65 mph when the left front tire blew out. The driver put on the brakes, which caused the vehicle to slide broadside to the road and then overturn and roll five times. It landed on the driver's side. Both occupants were wearing their seatbelts and were treated for minor injuries.

SPEED, OVERSTEERING

An Air Force member with a civilian passenger picked up a second member at a housing area to take him to the base. About a mile from the base, the right wheels of the car went off the pavement while the car was going around a left hand curve. Attempting to get back onto the roadway, the driver oversteered and crossed both lanes of traffic. His car was hit by another vehicle and it went off the road and overturned into a ditch. All occupants of both vehicles were injured, and the Air Force passenger was killed. Alcohol was not a factor and the car was in good condition. Investigators decided excessive speed was the cause, along with overcorrection.

HEAD-ON

An Air Force member and his passengers — another member, a woman and her child — were returning at night from a camping trip. A witness followed the car for about 17 miles and saw the car swerving into oncoming traffic, varying its speed from 10 to 70 mph and flashing the turn signals inappropriately. At one point, the car went off the highway completely and stopped momentarily. The member drove into the path of two oncoming vehicles, swung back into his own lane and then crossed into the opposing lane again, hitting another car head-on at about 1950 hours. The driver was dead at the scene, and the other member was pronounced dead in the hospital at 2115. The woman and the one-year-old child were in critical condition. The driver had been under the influence of alcohol.

RAN A RED LIGHT

A member was riding a borrowed motorcycle east at 60 mph on a street posted for 50 mph. Another man was driving his car south on the intersecting street at 45 mph. The traffic light had been green for the car driver for about two to three seconds. The driver said he saw the motorcyclist approaching but thought he was going to stop. The motorcycle hit the right side door of the car and the motorcyclist was thrown off. He died at the scene from a broken neck. He had been wearing a helmet and a high visibility vest. Investigators discovered he had received two speeding tickets in the area. He had been planning to buy the motorcycle from the owner, but he was not an experienced rider. He had not attended Course VII. He was not a drinker.

.142 BAL

A member traveled cross-country with a friend to visit their parents for a month. About 1845 on the night before they were to leave to go back to the base, the member's brothers dropped the friend off at his parent's home and went on to another bar to listen to the band. The member dropped his brother off at about 0150 and left for his parent's home. About 10 minutes later, the member lost control of the car going around a curve. He crossed the opposing lane, went down a slight embankment and struck a tree. The highway patrol was notified and they found the car with its driver's side door against the tree. The driver was trapped beween the seat and the severely crushed door. The highway patrolmen noticed the odor of alcohol on the member's breath. They estimated the car's speed at 49 mph, based on the skid marks it left, although the speed limit is 25 mph. The fire department had to use the "jaws of life" device to cut into the car to get him out. He was finally extricated at 0234. He was taken to the hospital and diagnosed with very serious internal injuries, broken bones and head injuries. His Blood Alcohol Level (BAL) was .142. Surgery was performed, but his condition worsened and he died four days later.

SPEED AND ALCOHOL ON A CYCLE

A sergeant had just got his motorcycle out of the shop. He got off work at 2200 and went to the NCO club to join some friends. He and his friends drank until the club closed and then left. The sergeant had trouble getting his bike started, but finally got it push-started. Later he was stopped by a security policeman and sent home to his dormitory. He decided to go to an off-base bar, where he drank more beers. At about 0450 he left. He accelerated out of the parking lot to stay ahead of a pickup truck on the road and traveled at 50 mph on the 40 mph road. The truck pulled up beside him in the same lane. He moved farther to the right. As the truck passed, he looked at its occupants. When he looked ahead again, he saw a speed limit sign in his path. He hit the sign with his handlebars and the motorcycle went to the right. The wooden sign post was broken in two and the sergeant was thrown off the cycle. He flew 25 feet and landed on a dirt embankment. The cycle traveled on another 60 feet. It was totaled, but the rider suffered only a shoulder separation and several cracked ribs thanks to the full coverage helmet with faceshield and the heavy leather jacket he was wearing.

Timely Topics

PROMPT LICENSE SUSPENSION IS EFFECTIVE

A National Highway Traffic Safety Administration (NHTSA) study of drunk driving laws in Minnesota reports that suspension of licenses by direct administrative action rather than delayed court procedures is a prompt, effective way to remove driving-while-intoxicated (DWI) offenders from the road.

Minnesota's "administrative per se" law provides for a 90-day license suspension which may be served directly by the police officer to any driver whose breath test indicates an illegal blood alcohol concentration (BAC) over .10 percent. The license may be suspended for 180 days if the driver refuses to take the test. The driver has a right to ask for a hearing.

NHTSA Administrator Diane K. Steed said, "Loss of a driver's license is perceived by the public as one of the most feared consequences of drunk driving arrests. Minnesota is to be congratulated for its leadership, as the first state to adopt a two-track DWI system, which includes administrative license suspension as well as the conventional criminal charge procedures to handle DWI offenders."

The Minnesota law was adopted originally in 1976 and then strengthened in 1982. NHTSA's report shows that DWI offenders in Minnesota are now losing licenses faster and for longer periods of time. The court system benefits as well. Since it is relieved of the responsibility for suspensions, it has not become backlogged with appeal cases.

AXLE DANCE IS NOT FUN

The "axle dance" and "tapping on the pavement" are not variations of breakdancing. Both are symptoms of worn shock absorbers, says the Automotive Information Council (AIC).

AIC says there are several ways to know when new shocks are needed. The most obvious is an oil leak. Front-end dip and rock when you stop is another. However, shocks can be checked quickly and with only two pieces of equipment — your hands. Use these adjustable tools to bounce the front and rear of your parked car. If the car bounces more than twice, chances are you are a prospect for new shock absorbers.

Shock absorbers should be evaluated every 20,000 to 36,000 miles. Even a relatively new car might be a candidate for shock absorber replacement if it is used in severe service.

Heavy duty or special shocks should be considered if the car is used for trailer towing. Too much weight drags the rear end down, throwing off the balance of the automobile.

Additionally, worn shocks can cost you money. They are rough on tires and, like overloading on the rear end, throw the car out of balance.

To avoid an overloaded condition, you may need helper springs as well as shocks. They can be purchased in combination. You might want to consider air adjustable shocks if on occasion the car is subjected to heavy loads.

Always replace shock absorbers in pairs. Shocks can be purchased and installed in repair shops, service stations or service centers of mass merchandisers. Or you can do the installation yourself.

THE QUICK INSPECTION

Can you spare 10 minutes? That's all it takes for a routine check of your car to make sure that some key parts are working properly, says the Automotive Information Council.

Brakes probably are the most important safety item in your car — except the safety belts and you. If you can't stop, that's big trouble. At about 25 miles an hour, begin braking with a steady pressure on the pedal. The vehicle should slow to a complete stop as long as pressure is applied. Later, when making an underhood inspection, check the brake fluid level.

Windshield wiper blades really don't need to be inspected; replacements are needed when the rubber leaves a streak on the window. Actually, it's a good idea to replace the blades a couple of times a year in a four-season area.

Shock absorbers that have outlived their usefulness can be checked by pushing down on each fender. The car shouldn't bounce more than a couple of times. The most obvious sign new shocks are needed is an oil leak.

Tires are a familiar subject but a lot of people gamble on baldies and with cuts in the tread or sidewall. If front tires are not wearing evenly, the front end may need an alignment. When you check tire pressure to meet recommended specifications, do it after the car has been idle for an hour.

Lights probably will take more time than any other check. The best way to be sure tail lamps are working is to get out of the car and see for yourself. For a brake light check, you need another person to look while you step on the brake. Help is also needed to check back-up lights. Don't forget the turn signals — both front and rear.

And don't forget the fluid for the windshield washer. Check the condition of belts and hoses.

THE OUTLOOK FOR SEAT BELT USE LAWS

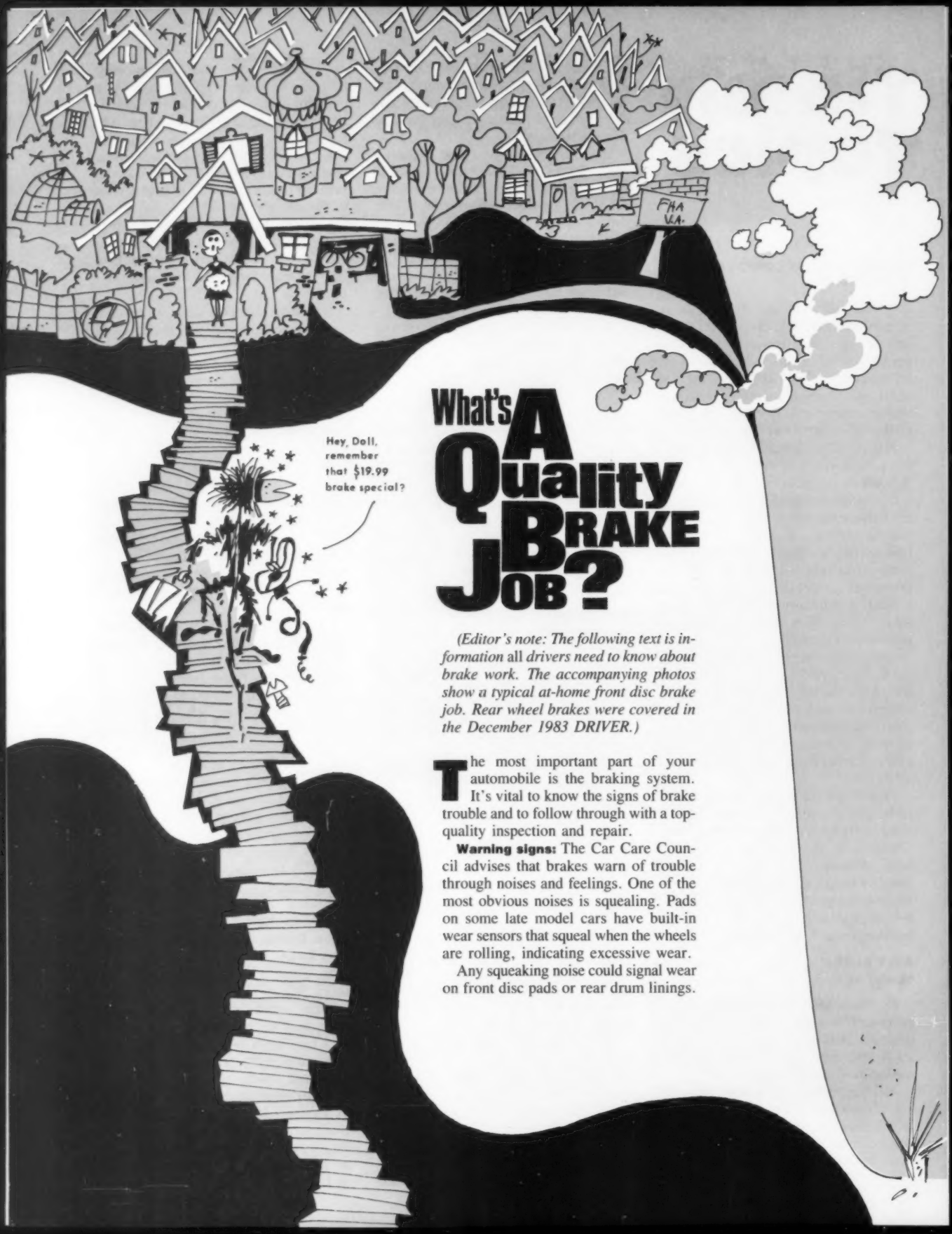
On July 12, Governor Mario Cuomo of New York signed the nation's first state law requiring the use of safety belts in passenger cars. The law, which takes effect December 1, reflects the belief that a large portion of traffic deaths and injuries in the Empire State are preventable at little or no cost to motorists and taxpayers.

Once the benefits of New York's belt law are proven, other states are expected to follow suit. The U.S. Department of Transportation ruled July 11, that, if states containing two-thirds of the U.S. population enact seat belt laws by April 1, 1989, installation of automatic ("passive") crash protection devices will not be required in new cars.

The Highway Users Foundation has determined that less than one-third of the states contain more than two-thirds of the U.S. population. According to the 1982 Census Bureau estimate (Series P-25, No. 927), two-thirds of the population is 154,356,000, which is contained in the following 16 most populous states: California, New York, Texas, Pennsylvania, Illinois, Ohio, Florida, Michigan, New Jersey, North Carolina, Massachusetts, Georgia, Virginia, Indiana, Missouri, Wisconsin.

Other combinations would require more than 16 states in order to encompass two-thirds of the population.

Because most state legislatures have adjourned for the year, chances appear slim that other states will join New York in passing seat belt laws this year. However, the Highway Users Federation forecasts significant support for belt law adoption by at least 11 state legislations in 1985.



What's A Quality BRAKE JOB?

(Editor's note: The following text is information all *drivers need to know about brake work. The accompanying photos show a typical at-home front disc brake job. Rear wheel brakes were covered in the December 1983 DRIVER.)*

The most important part of your automobile is the braking system. It's vital to know the signs of brake trouble and to follow through with a top-quality inspection and repair.

Warning signs: The Car Care Council advises that brakes warn of trouble through noises and feelings. One of the most obvious noises is squealing. Pads on some late model cars have built-in wear sensors that squeal when the wheels are rolling, indicating excessive wear.

Any squeaking noise could signal wear on front disc pads or rear drum linings.

A metallic grinding noise means the lining is down to bare metal.

Other warning signs can be felt: If the pedal depresses farther than usual; if the pedal sinks to the floor board when you're stopped at a light; if the pedal needs pumping to stop the car; if the brakes grab or the car pulls to one side; the brakes need immediate attention.

Watch your car's instrument panel if it has a brake light. If it flashes on, proceed with caution and get the system checked as soon as possible.

Whatever the signal, don't delay or you may damage expensive components such as disc brake rotors. If linings are allowed to wear down completely, metal-to-metal contact can cut deep, irreparable grooves into rotors or drums.

Have brakes checked annually, *or every 10,000 miles,* because wear developes so gradually, that it can be hard to detect. Also, have brake fluid in the master cylinder checked monthly.

If the *brake fluid* is low, have brakes inspected. Brakes are activated by fluid pressure pushing pistons in the calipers and wheel cylinders. On front disc brakes, there are calipers with one piston (or more), a pincher that grabs rotors. Wheel cylinders operate brake shoes and push them into the drum. A well functioning system doesn't lose fluid, according to the Car Care Council.

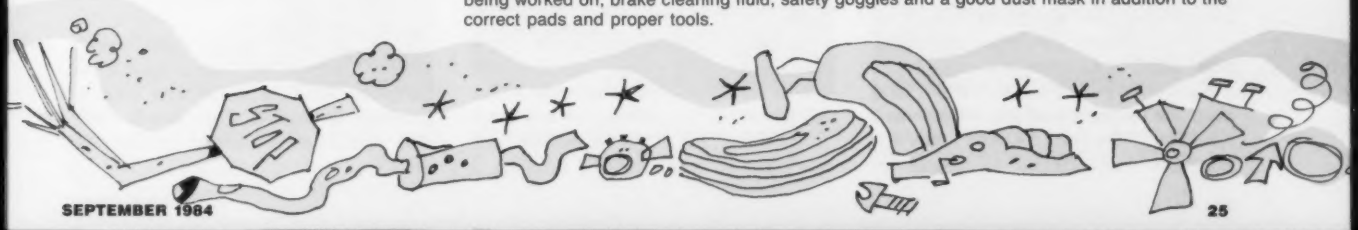
A thorough inspection: A quality brake inspection begins with a *test drive,* checking for brake noises, pedal travel and brake pulls. Next, the service technician checks for low brake fluid level indicating leaks in cylinders, in the brake lines, or the *brake* hoses running to the *brake* mechanism on each wheel.

Then the technician removes one front and one rear wheel and checks the *shoe and pad linings* for uneven wear, glazing or saturation from brake fluid. S/he measures thickness and recommends replacement if linings are below specifications.

continued

Before starting any work under a car, set the emergency brake, chock the rear wheels and, once the vehicle has been raised off the ground, support it with secure jack stands.

To safely change front disc brake pads you'll need a shop manual for the specific vehicle being worked on, brake cleaning fluid, safety goggles and a good dust mask in addition to the correct pads and proper tools.



continued

With the wheels removed you can usually get at the disc brake pads by either driving out or unscrewing the slide pins. In some cases you will then be able to rotate the caliper to remove the pads, but not so with the pictured vehicle.

Caliper pistons and wheel cylinders are checked for signs of leaks that could saturate linings *or frozen pistons that* could make brakes inoperative. S/he *measures* the drums and rotors for excessive wear and inspects the braking surfaces. Finally, s/he looks over the parking brake to make sure it is adjusted properly and not frozen.

The wheel bearings should only be inspected if a new wheel seal is reinstalled and the bearings are repacked.

Repairing brakes right: A quality brake repair begins with replacing worn or defective components with parts equal to the car's original equipment. If linings need replacing, the mechanic may recommend *overhaul of the hydraulic system.* In the long run this will save money because hydraulic components fail after a period of time due to contaminated brake fluid and corrosion.

The brake pads used on today's cars may be semi-metallics. They are specifically designed for heavy duty applications and original equipment on downsized cars. It is recommended to put this type of lining on cars that were originally equipped with them. This is because they will wear longer, resist higher operating temperature, reduce noise and possible rotor damage.

Before replacing the shoe and pad lining, the mechanic must overhaul the calipers and resurface the rotors. The mechanic first removes the calipers that hold the disc brake pads, disassembles and cleans them. He then installs new seals and replaces the brake hardware. The rotors are removed and the wheel bearings are inspected and repacked with fresh grease. The rotors are machined to remove glazing and smoothing out any uneven surface wear. Rotors are reinstalled with the repacked bearings and retorqued to specifications. Now the new brake pad linings are installed on each side of the calipers and assembled on the rotors.

There are always springs that have to be removed before the pads can be pulled. Watch carefully when removing the slide pins that the spring doesn't fall and get lost.

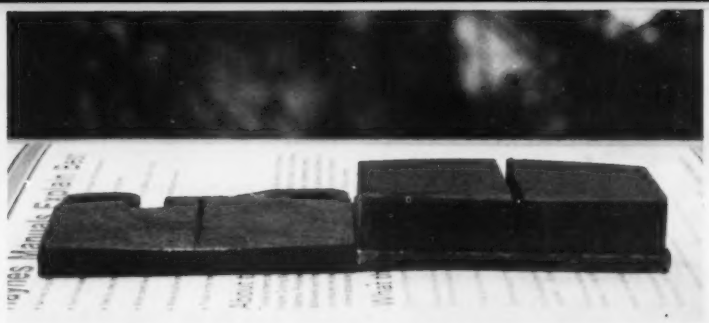
At the rear, the drums are removed and machined to specification, assuring a smooth, round seating surface. The mechanic then disassembles the wheel cylinder, inspects and rebuilds it, or installs a new unit as needed. Before the new shoes are installed, the mounting plate and parking brake mechanism is checked. Lastly, the new shoes are installed with new hardware.

The order varies from vehicle to vehicle, but in this case the inside pads are removed first.

To complete the quality brake job, the rear lining is adjusted and the entire system is pressure bled with new, clean brake fluid in the process, removing any moisture and air that is present.

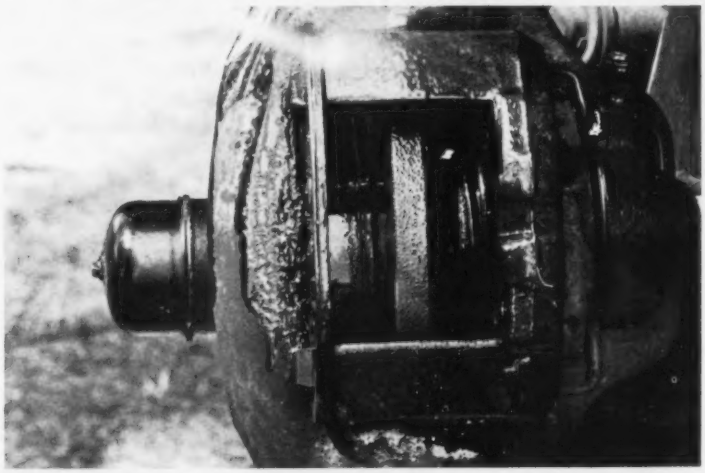
When the job is finished, the Car Care Council suggests pampering your brakes by driving smoothly. Avoid the quick stops that create excessive friction and wear out breaks. But don't forget to listen and feel for signs of trouble.

For more information on the braking system, send for Car Care Council's free pamphlet. Send a self-addressed, stamped envelope to Dept. B, Car Care Council, 600 Renaissance Center, Detroit MI 48243.



Notice the difference between the old and new pads. Any pad that is less than 1/8th-inch thick should be replaced. Always replace all the pads at the same end of the car at the same time.

With the inside pad removed, the floating portion of the caliper can be moved enough to allow the outside pad to be pulled.



After cleaning the brake assembly, inspect all the seals and hoses. Then check the disc for cracking, scoring or rust as well as for runout and wear. If the rotor is worn or damaged it should either be turned on a brake lathe (as long as it is still within specifications) or replaced.

After pushing the piston back into the caliper, the new pads can be installed.

Once the new pads are in place, reinstall all the springs. Make sure all these springs are in good condition. If not, they should be replaced.

Reinstall the slide pins (only if they're in good condition, otherwise replace them) and the wheels and you're ready for a road test.

Backfire

LETTERS to the EDITOR

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ALL AGREE ON PHOTOS

I wholeheartedly agree with TSgt McCoy's suggestion of including photographs of accidents in DRIVER Magazine along with a brief explanation (causes, conditions, injuries, etc.). I too am a volunteer fireman and also worked as a tow truck operator before joining the Air Force. Although I have always been a firm believer in seat belts, the accidents I have seen have further convinced me. I feel that if more people can see the result of even minor collisions, they will be made more aware of the incredible forces and unpredictable actions that occur.

As an added suggestion, maybe it would be a good idea to include a "tour" of several accident vehicles in base driver education courses.

SrA Dennis Martin, USAF
Hill AFB, UT 84056

I would like to respond to the Backfire letter from TSgt John McCoy. He wants you to show real life accident pictures to "wake people up" on wearing seat belts. I couldn't agree more. I never wore a seat belt and the base always pressed wearing them to save lives. To me, that was just talk and harassment.

I then saw some pictures of what people looked like after an accident; I started thinking. I then saw a pick-up truck that looked like a train ran over it. The person who was driving that truck was standing next to it (a woman, who was very much alive) and she had worn her seat belt. That's the picture that sold me on wearing my seat belt. I now make it mandatory that my wife and two sons buckle up also.

SSgt. Richard Chovan, USAF
Little Rock AFB, AR 72076

Yes, actual photos of how the human body can be damaged instead of dummies or "could happen" statements better illustrate devastating injuries. How people can think they do not need to wear seat belts, I'll never understand.

Capt. John Terry, USA
Ft. Sam Houston, TX 78234

I am responding to your question in the July 84 copy of DRIVER, page 29.

I am in agreement of showing pictures of the accidents.

I believe that this will make more people use their seat blets. Since reading your magazine I have begun to use seat belts.

Connie Phillips
Ft. Sill, OK 73503

In answer to TSgt McCoy's suggestion; YES, perhaps photos would get the attention of the 'fools' that don't wear seat belts.

Lorraine Mauzy
Great Lakes, IL 60088

Regarding the idea proposed by TSgt McCoy, namely accident photographs; DO IT! You may (and probably will) offend the squeamish, shock the sensitive and repel the naive. However, you will also start a few people thinking. Sometimes it takes a 2-by-4 across the backside to get attention for the message to follow.

Walt Moore
Norton AFB, CA 92409

In regards to TSgt McCoy's "What Do You Think" (Backfire, July 84), for five years I free-lanced as a newspaper photographer. My "specialty" was covering accidents. I'd listen to my scanner, and respond with police.

Pictures are always needed — for evidence, insurance, lawsuits — and "human interest." Many accidents are stomach turning and people wonder how I could get so close and document it. It wasn't easy — I, too, am human. Through my lens I saw things never shown on TV's worst accidents and disasters. Smashed vehicles are bad enough to the owner — but many become involved when people are involved. Sometimes a head injury (no seat belt),

sometimes lost extremities or mangled remains. Then comes the tear jerker and throat choker — it's a friend, or an innocent, helpless child, or just someone whose pain you can feel.

The cause is one of thousands — weather, unobservance, a drunk — but there is always damage, whether it's to the vehicle or its occupants. Five years and never once have I seen a person killed that was wearing a seat belt. Those who weren't wearing their seat belts . . . some I wish I had never seen. Please DRIVER, print the pictures. Show the minor losses — and the priceless ones . . . loss of life. Turn stomachs like mine has been turned — let the readers see the point with a thousand words — a picture. Let others losses be our gains.

A1C Mark Cipriano, USAF
England AFB, LA 71301

In the July 84 issue of DRIVER, you solicited comments about showing photos of vehicles in accidents. For what they're worth, here are my ideas:

Pictures should be used, but the captions can make the difference. Something like "The driver died" may *not* have that much impact. Instead, a little more work might pay some dividends . . . something along the line of *how* the car and its occupants interacted during the crash. Examples:

"Notice the small amount of damage to the interior of this car . . . unbelted driver was ejected through open *passenger-side* window and was killed when car rolled on top of him."

"Steering wheel bent when driver's chest impacted it. Gearshift lever probably bent by driver's knee, while windshield shattered by his head."

"Car rolled at least three times." (show photos of gouges in pavement and shoulder.) "Belted driver suffered bruises."

A tricky but possibly effective method to also try might be to show how *far* autos travel in various crashes. Most people have a poor sense of distance, but if you can *show* them how far (for example) 490 feet and the gouges and skid marks left by a bouncing car in that space, it might make them slow down. To do this would take some very careful photography (using *people* at various points in the pictures to help give perspective) but I think it would be worth a try. I don't advocate blood-and-guts pictures, which may cause problems in trying to portray some accidents (I'm specifically thinking of motorcycle accidents).

I think that the idea really has merit. I wish that I could have a picture of a scene I once found in the junkyard behind a gas station. A new Cadillac had been towed in the night before. The intoxicated driver had hit a flat bridge abutment squarely head on, at a fairly low speed. Consequently, the big Caddy took the shock very well . . . it really wrinkled the front end, but the creases diminished and ended well before the tail of the car. The all-white interior was absolutely perfect, except for a small star crack in the windshield where the driver's head hit and the completely collapsed steering column and a formerly dished steering wheel flattened by the driver's chest. That blow killed him. Yet, laid out neatly over the seats were the pristine belts that might well have saved him. The relative lack of damage, the spotless interior and the irony it held, as well as the needless death of that stranger really drove home the points about belts and DWI. I hope you can find similar situations if you choose to use such photos. Thanks again for a great magazine . . . hope my comments help.

Matt Anderson
Enon, OH 45323

GETTING TOUGH ON DRUNK DRIVING

After reading your article(s) on "True Accidents," it really helped me to understand just how important it is to encourage people not to drive under the influence of alcohol. The most inspiring article in that topic was the one entitled "Innocent Victim." Actually the title speaks for itself. I really believe that out of every accident involving alcohol, there is always some innocent family who suffers because of someone else's stupidity.

I have been stationed here at Moody AFB, Ga., for the past three months. Having been given the privilege to work in the Security Police Squadron's Reports and Analysis Section, I have learned vital information about the results of driving under the influence of alcohol. I have also learned that the United States Air Force is getting tougher each year on DUI's, at least here at Moody they are. However, I would like to encourage you to use more pictures in articles such as those on alcohol. This is so people can SEE what they are actually getting into when they drink and drive. My main reason for writing this article is to inform the USAF law enforcement and administrative personnel on keeping up the good work. Because, here at Moody, it really shows some improvement.

A1C Ronnie L. Coasey, USAF
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WHAT ABOUT BICYCLES

We receive your magazine here at Sierra Army Depot in California, and I read it with interest every month. I have seen articles and letters concerning motorcycles and automobiles, but not bicycles and automobiles. It may be useful for drivers to be made aware of bicyclists on the roadways, and to look out for them! I know because I ride my bike to work and have had a few close calls. Bicycle safety for riders could also be included — from my experience many people (particularly children) don't know the first thing about how to share the road with cars.

Dion Gardner
Sierra Army Depot, CA

The last major bicycle article we did was in July 1981. We'll put the subject on our list again for next spring since most bicycle commuters are soon coming to the end of their riding season.

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INTERSECTIONS

WHO'S GOT THE RIGHT-OF-WAY?

A lot of accidents happen at intersections and most of them involve failure to yield the right-of-way.

So, rule number one in avoiding an intersection accident is *always* yield the right-of-way when there's any doubt or seems to be any contest about it. In the long run, it pays off to lay back and yield.

WHAT DOES YELLOW MEAN?

The yellow light is to give you time to clear an intersection once you're in it, but never to signal you to speed up and try to sneak through before it turns red.

PLAYING THE GREEN

As you approach an intersection where the green light has been on for some time, reduce speed and anticipate a light change. And when the green comes on while you're stopped for a light, it doesn't mean instant go. Hesitate is the word. Check to make sure cross traffic has cleared. Look left, look right, then scan left before moving.

WHAT DOES RIGHT ON RED REALLY MEAN?

The *right* in "right on red" indicates direction only and doesn't give you the *right* to do anything. In fact, everybody else — driver and pedestrian — has the right-of-way over you. You can turn only when traffic is clear and all pedestrians are clear of the crosswalks, *after you've come to a full stop* in the extreme right lane and signaled the turn.

NOTE: These rules are for the United States. If you are stationed overseas, learn and obey the traffic rules of your host country.

(National Safety Council)